

Applicants: Förster et al.
Serial No.: 10/634,606
Filing Date: August 5, 2003
Response to Office Action mailed April 18, 2005
Page 12 of 16

REMARKS

The non-final Office Action mailed April 18, 2005 and the references cited therein have been carefully considered. Claims 1, 8, 41, and 43 have been amended and Claims 5 and 12 have been cancelled in a sincere effort to further clarify that which Applicants regard as the invention.

Support for this Amendment is found generally within the specification, claims, and drawings, as originally filed. Specifically, support for the amendments to Claims 1, 8, 41, and 43 is provided at page 7, line 13 through page 8, line 8; page 14, lines 5-25; page 8, line 9 through page 10, line 27, and shown in Figures 1, 5a, 5b, and 9.

Claims 1-4, 6-11, 13, 14, and 41-44 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,663,508 to Sparks (*Sparks*). Claims 5 and 12 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Sparks* in view of U.S. Patent No. 3,340,733 to Lasher (*Lasher*).

The present invention is directed to a flow sensor, which includes a paddle and a support member. The support member positions the paddle at least partially in an orifice, wherein the support member includes a plurality of strain gauges operatively configured as a Wheatstone bridge, which is disposed on only one side of the support member, as now defined by amended Claim 1.

The present invention is further directed to a method of sensing flow, which includes positioning a paddle at least partially in an orifice by a support member, wherein the support member includes a plurality of strain gauges operatively configured as a Wheatstone bridge, which is disposed on only one side of the support member, as now defined by amended Claim 8.

The present invention is yet further directed to a medium sensing device, which includes a flow device and a circuit board sandwiched between a first mating portion and second mating portion removably joined together, wherein the circuit board is adapted to be removable from between the first and second mating portions, as now defined by amended Claim 41.

The present invention is still further directed to a method of providing a sensor in a medium flow device, which includes providing the medium flow device as a first mating portion and a second mating portion removably joined together, and sandwiching a circuit board between the first and second mating portions, wherein the circuit board is adapted to be removable from between the first and second mating portions, as now defined by amended Claim 43.

It is respectfully submitted that only a portion of the Wheatstone bridge shown in Figure 1 of Lasher is disposed on the support member, specifically strain gauges 22, 23, while the remaining portion of the bridge, specifically resistors 45, 46, is positioned external to the support member. Accordingly, Claims 1 and 8 have been amended to further clarify that the strain gauges are configured as a Wheatstone bridge that is disposed on only one side of the support member. Providing the Wheatstone bridge on only one side of the support member substantially simplifies the overall design of the sensor and reduces its cost, as discussed at page 14, lines 5-25 of the specification.

The Office Action indicates that *Sparks* discloses a flow device including a first mating portion 38 and a second mating portion 40, as shown in Figure 5 and described at column 5, lines 19-25 of *Sparks*. Specifically, the “sensor 210 is shown as including a top capping chip 38 and a bottom capping chip 40 that can be *bonded* to the chip 12 in any suitable manner” (emphasis added). Thus, the top capping chip 38 and bottom capping chip 40 are used in a wafer-to-wafer *bonding* process to manufacture the silicon flow sensor 210,

in which the chips 38, 40 are clearly not removable from each other without substantial damage thereto.

In contrast, the first and second mating portions or base plate portions 12A, 12B are clearly removable from each other, as disclosed at page 9, line 17 through page 10, line 7 of the specification and shown in Figures 5A, 5B, and 9. Accordingly, Claims 41 and 43 have been amended to further clarify that the first and second mating portions are removably joined together and that the circuit board is adapted to be removable from between the first and second mating portions. Providing removably joined first and second mating portions enables the circuit board to be inserted therebetween to measure flow while being protected from shock, humidity, dust, corrosive chemicals, and other environmental hazards, as well as enabling the mating portions to be separated without disturbing tubes connected to one or more of the mating portions, as discussed at page 8, lines 9 through page 10, line 27. It also permits replacement of the circuit board, if so desired.

Applicants respectfully note that in order to support a claim of *prima facie* anticipation, a single reference must teach or enable each of the claimed elements as arranged in the claim interpreted by one of ordinary skill in the art. Further, in order to support a claim of *prima facie* obviousness, the cited references must teach or suggest each and every element of the invention, and there must be a motivation in the references or the prior art to combine the references and the prior art as suggested.

However, nothing in the art of record would teach or suggest, either alone or in combination, a flow sensor including a paddle and a support member, wherein the support member includes a plurality of strain gauges operatively configured as a Wheatstone bridge disposed on only one side of the support member, as now defined by amended Claim 1. In addition, nothing in art of record would teach or suggest a method of sensing flow including positioning a paddle at least partially in an orifice by a support member, wherein the support

Applicants: Förster et al.
Serial No.: 10/634,606
Filing Date: August 5, 2003
Response to Office Action mailed April 18, 2005
Page 15 of 16

member includes a plurality of strain gauges operatively configured as a Wheatstone bridge disposed on only one side of the support member, as now defined by amended Claim 8.

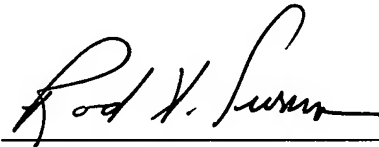
Further, nothing in the art of record would teach or suggest, either alone or in combination, a medium sensing device, which includes a flow device and a circuit board sandwich between a first mating portion and second mating portion removably joined together, wherein the circuit board is adapted to be removable from between the first and second mating portions, as now defined by amended Claim 41. In addition, nothing in the art of record would teach or suggest a method of providing a sensor in a medium flow device, which includes providing the medium flow device as a first mating portion and a second mating portion removably joined together, and sandwiching a circuit board between the first and second mating portions, wherein the circuit board is adapted to be removable from between the first and second mating portions, as now defined by amended Claim 43.

Applicants respectfully submit that Claims 2-4, 6, and 7, which ultimately depend from Claim 1; Claims 9-11, 13, and 14, which ultimately depend from Claim 8; Claim 42, which depends from Claim 41; and Claim 44, which depends from Claim 43 are patentable over the art of the record by virtue of their dependency from Claims 1, 8, 41 and 43, respectively. Further, Applicants submit that Claims 2-4, 6, 7, 9-11, 13, 14, 42, and 44 define additional patentable subject matter in their own right. Therefore, it is respectfully requested that the rejection of Claims 1-4, 6-11, 13, 14, and 41-44 under 35 U.S.C. §102(b) and the rejection of Claims 5 and 12 under 35 U.S.C. §103(a) be reconsidered and withdrawn.

Applicants: Förster et al.
Serial No.: 10/634,606
Filing Date: August 5, 2003
Response to Office Action mailed April 18, 2005
Page 16 of 16

In view of the foregoing amendments and remarks, entry of the amendments to Claims 1, 8, 41, and 43; favorable consideration of Claims 1, 8, 41, and 43, as amended; favorable reconsideration of Claims 2-4, 6, 7, 9-11, 13, 14, 42, and 44; and allowance of pending Claims 1-4, 6-11, 13, 14, and 41-44 are respectfully and earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Rod S. Turner", is written over a horizontal line.

Rod S. Turner
Registration No. 38,639
Attorney for Applicant(s)

HOFFMANN & BARON, LLP
6900 Jericho Turnpike
Syosset, New York 11791
(516-822-3550
RST:mak/me